IN THE CLAIMS

Claim 1 (Currently Amended): A document image processing device, comprising:

an image memory part that holds an input document image per each page;

a predetermined pixel block extraction part that analyzes a layout of the input document image in plural pages stored in the image memory part, determines at least one pixel block in the input image, and extracts a predetermined pixel block that appears commonly on at least some pages from [[an]] a plurality of the at least one pixel block ~~input document image~~; and

an image correction part that corrects a location of the whole input document image so that a position of the predetermined pixel block extracted by the predetermined pixel block extraction part is based on [[a]] the reference position or [[a]] the position of a reference pixel block in [[the]] a document image.

Claim 2 (Previously Presented): The document image processing device according to claim 1, further comprising:

a reference position designation part that causes a user to designate the reference position or the position of the reference pixel block in the document image,

wherein the image correction part corrects the location of the whole input document image so that the position of the predetermined pixel block extracted by the predetermined pixel block extraction part is based on the reference position or the position of the reference pixel block in the document image designated by the reference position designation part.

Claim 3 (Currently Amended): The document image processing device according to claim 1, further comprising:

the predetermined pixel block includes the at least one pixel block appearing

~~an image memory part that holds the input document image per each page,~~

~~wherein the predetermined pixel block extraction part analyzes a layout of the document image in plural pages to be processed stored in the image memory part, and if there is approximately the same pixel block~~ at a ~~same~~ similar position in a document image of each page which are approximately the same from each other, wherein the predetermined pixel block extraction part regards [[the]] the approximately the same pixel block as a predetermined pixel block and determines the reference position.

Claim 4 (Previously Presented): The document image processing device according to claim 1, further comprising:

~~an image memory part that holds the input document image per page; and~~

a reference position designation part that causes a user to designate the reference position or the position of the reference pixel block in the document image,

wherein ~~the predetermined pixel block extraction part analyzes a layout of the document image of all the pages to be processed stored in the image memory part, and~~ if there is ~~approximately the same pixel block~~ the at least one pixel block appearing at a [[same]] similar position in the document image of each page, the predetermined pixel block extraction part regards this pixel block as the predetermined pixel block, and the image correction part corrects a location of the whole input document image so that a position of the predetermined pixel block extracted by the predetermined pixel block extraction part is based on the reference position or the position of the reference pixel block designated by the reference position designation part.

Claim 5 (Original): The document image processing device according to claim 1, wherein the predetermined pixel block extraction part comprises a rectangular frame extraction part that extracts pixel block rectangular frames from the document image, a character string direction designation part that specifies a character string direction of the document image, a connected rectangular frame generation part that connects the rectangular frames in the direction designated by the character string direction designation part, and a connected rectangular frame extraction part that extracts the connected rectangular frame located nearest to the reference position or the position of the reference pixel block.

Claim 6 (Original): The document image processing device according to claim 5, wherein the character string direction designation part comprises a user interface that causes a user to designate the character string direction.

Claim 7 (Original): The document image processing device according to claim 5, wherein the character string direction designation part comprises a document layout analysis part that specifies the character string direction by analyzing the layout of a document image.

Claim 8 (Original): The document image processing device according to claim 7, wherein the document layout analysis part extracts runs of white pixels to be a background of the document image in both vertical and horizontal directions, connects adjacent runs of white pixels having a value equal to or larger than a predetermined threshold value to form a rectangular frame of a white pixel region in both vertical and horizontal directions, extracts rectangular frames having a width equal to or larger than a predetermined value from the rectangular frames in both vertical and horizontal directions, compares between the number of rectangular frames extracted in the vertical direction and the number of rectangular frames extracted in the horizontal direction, and determines the direction of the larger number as the character string direction of the document.

Claim 9 (Previously Presented): The document image processing device according to claim 1, further comprising an undetected log generation part that records information of the document image from which the predetermined pixel block extraction part cannot extract the predetermined pixel block.

Claim 10 (Currently Amended): The document image processing device according to claim [[2]] 1, wherein the reference position designation part comprises an odd number page reference position designation part that designates the reference position or the position of the reference pixel block in odd number pages, an even number page reference position designation part that designates the reference position or the position of the reference pixel block in even number pages, and a page switching part that switches between outputs from the odd number page reference position designation part and the even number page reference position designation part depending on whether the page number is even or odd, thus making it possible to set respective separate extraction regions for the odd number page and the even number page.

Claim 11 (Currently Amended): The document image processing device according to claim 3, wherein, if the approximately the same pixel block is found at a [[same]] similar position in the document image on odd number pages, the predetermined pixel block extraction part regards the pixel block as the predetermined pixel block on odd number pages, and if the approximately the same pixel block is found at a [[same]] similar position in the document image on even number pages, regards the pixel block as the predetermined pixel block on even number pages.

Claim 12 (Original): The document image processing device according to claim 1, further comprising a skew correction part that corrects skew of the input document image.

Claim 13 (Original): The document image processing device according to claim 12, wherein the skew correction part subjects a center coordinate of a rectangular frame of pixel blocks to Hough transform to detect a skew angle.

Claim 14 (Original): The document image processing device according to claim 1, wherein the predetermined pixel block corresponds to a page number image, the document image processing device further comprising:

a character recognition part that recognizes a character in an image; and

a sort part that sorts the pages in the page number order after the image correction part corrects the location of the whole input document image and the character recognition part recognizes the page number character in the page number image.

Claim 15 (Currently Amended): A document image processing method, comprising:

causing a user to designate in advance a reference position or a position of a reference pixel block;

analyzing a layout of an input document image in plural pages to be processed;

determining at least one pixel block in the input image;

extracting a predetermined pixel block commonly appearing at least in some pages from ~~an input document image~~ a plurality of the at least one pixel block; and

correcting a location of the whole input document image so that a position of the extracted predetermined pixel block is based on the reference position or the position of the reference pixel block.

Claim 16 (Currently Amended): A document image processing method, comprising:

analyzing a layout of an input document image in plural pages to be processed;

determining at least one pixel block in the input image;

if the at least one pixel block ~~there is approximately the same pixel block at a similar position~~ in the input document image in each page are approximately the same from each other and appears at a similar position in each page, ~~determining~~ deciding the approximately the same pixel block as a predetermined pixel block and determining a reference position designated by a user; and

correcting a location of the whole input document image so that a position of the predetermined pixel block appearing in the input document image in each page is based on the reference position.

Claim 17 (Currently Amended): A document image processing method, comprising:

causing a user to designate in advance a reference position;

analyzing a layout of an input document image in plural pages to be processed;

determining at least one pixel block in the input image;

if the at least one pixel block ~~there is approximately the same pixel block at a similar position~~ in the input document image in each page are approximately the same from each other and appears at a similar position in each page, ~~determining the~~ deciding the approximately same pixel block as a predetermined pixel block; and

correcting a location of the whole input document image so that a position of the predetermined pixel block appearing in the input document image in each page is ~~coincident with~~ based on the reference position.

Claim 18 (Original): The document image processing method according to claim 15, wherein if the predetermined pixel block cannot be extracted from the input document image, information of the document image is recorded.

Claim 19 (Currently Amended): A memory medium readable by a computer, the medium storing a program of instructions executable by the computer to perform a function comprising:

receiving a reference position or a position of a reference pixel block designated in advance by a user;

analyzing a layout of an input document image in plural pages to be processed;

determining at least one pixel block in the input image;

extracting a predetermined pixel block commonly appearing at least in some pages from ~~an input document image~~ a plurality of the at least one pixel block; and

correcting a location of the whole input document image so that a position of the extracted predetermined pixel block is based on the reference position or the position of the reference pixel block.

Claim 20 (Currently Amended): A memory medium readable by a computer, the medium storing a program of instructions executable by the computer to perform a function comprising:

analyzing a layout of an input document image in plural pages to be processed;

determining at least one pixel block in the input image;

if the at least one pixel block ~~there is approximately the same pixel block at a similar position~~ in the input document image in each page are approximately the same from each other and appears at a similar position in each page, ~~determining the~~ deciding the approximately the same pixel block as a predetermined pixel block; and

correcting a location of the whole input document image so that a position of the predetermined pixel block appearing in the input document image in each page is based on [[the]] a reference position designated by a user.

Claim 21 (Currently Amended): A memory medium readable by a computer, the medium storing a program of instructions executable by the computer to perform a function comprising:

receiving a reference position designated in advance by a user;

analyzing a layout of an input document image in plural pages to be processed;

determining at least one pixel block in the input image;

if the at least one pixel block ~~there is approximately the same pixel block at a similar position~~ in the input document image in each page are approximately the same from each other and appears at a similar position in each page, ~~determining the~~ deciding the approximately the same pixel block as a predetermined pixel block; and

correcting a location of the whole input document image so that a position of the predetermined pixel block appearing in the input document image in each page is based on [[the]] a reference position.

Claim 22 (Original): The memory medium according to claim 19, wherein, if the predetermined pixel block cannot be extracted from a document image, information of the document image is recorded.

Claim 23 (Currently Amended): The document image processing device according to claim 1, wherein the position of the predetermined pixel block extracted by the predetermined pixel block extraction part is ~~coincident with~~ based on the reference position or the position of the reference pixel block in the document image.